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# Hog Cholera



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HOG CHOLERA is a highly infectious, contagious, and fatal disease of swine. Records of the past 40 years indicate that approximately 35 in every 1,000 swine in Minnesota are lost from this disease annually. It is a disease that should interest all engaged in the production and marketing of this class of livestock.

## CAUSE

The specific cause of hog cholera is not known. That it is a substance which is below the limits of microscopic visibility and will pass through certain earthy filters such as hold back ordinary germs is well known to science. It has never been grown on materials such as are used in bacteriological laboratories for the cultivation of bacteria. For this and other reasons the causative agent of hog cholera is referred to as **hog cholera virus.** The blood, urine, feces, muscles, and other tissues of a cholera-affected pig contain hog cholera virus. In fact, the cause appears to multiply readily in the body of a susceptible pig. A very small quantity of the blood of a cholera-affected pig (considerably less than one hundredth part of a thimbleful) will cause a susceptible pig to become seriously sick in from five to eight days after it is injected beneath the skin.

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## SOURCES

Frequently hog cholera suddenly "breaks out" in a herd or community in which it had never previously existed or where it had not occurred for many years. A question often raised under circumstances of this kind is, where did the infection come from? An answer is not always possible. Many times, however, a careful search reveals certain facts pointing to its most probable source.

An important source of cholera is a cholera-affected pig. Pigs that have been exposed to hog cholera are often added to herds of susceptible swine with the result that several days later the disease appears. The history often reveals that the pigs which were added appeared sound and healthy at the time. Pigs that have been exposed to cholera are often sold and resold one or more times before reaching the feed lot. Thus a consignment of pigs coming from a farm where cholera exists may be scattered among several herds and become the source of infection for a new outbreak.

Meat and bone scraps of cholera-affected swine, unless thoroughly cooked before fed to susceptible pigs, are a potential source of this disease. Experiments have shown that curing and smoking pork products from cholera-sick swine failed to destroy the virus.

The transmission of the disease by insects is another way in which hog cholera might be spread. Dogs, cats, birds, etc., may at times play a prominent part in distributing cholera in a neighborhood. Water which drains infected premises may be a factor in the spread of the disease. The fact that infective material might be carried on the shoes of persons walking about an infected hog lot is another source which cannot be entirely overlooked.

## SYMPTOMS

An early symptom is a refusal to eat solid foods. Liquid foodstuff and water may be taken sparingly until late stages of the disease. Fever is a

typical and characteristic symptom. Body temperatures of 105° to 108° F. are not uncommon. The normal temperature of swine varies from 101° to 103° F. Cholera-sick swine become very weak, and when caused to walk they move about with a wabbling and staggering gait. The abdomen, especially in region of the flank, is tensed or "tucked up." Diarrhea often is a prominent symptom.

At the beginning of an outbreak only one or two pigs in the herd may appear ill. Three or four days may pass before others are noticeably sick. **It is important therefore to obtain the advice and services of a veterinarian as soon as swine are seen to be sick so that a proper diagnosis can be made and the necessary procedures taken with regard to treatment.**

## POST-MORTEM APPEARANCES

When a pig suffering from cholera is examined after death, certain definite things may be observed. The skin covering the under side of the body and inner sides of the legs sometimes appears red or purplish red. Small red to reddish-black spots usually occur upon the surfaces of the kidneys. In the urinary bladder small hemorrhages are found more often in the lining membrane. The abnormal changes in the spleen consist of dark colored congested areas that are slightly raised above the surface. These vary in size from smaller than a ten cent piece to larger than a half dollar. The lymph nodes usually show changes which vary from intense congestion of the entire node to hemorrhage occurring mostly around the borders of the node. The larynx or the organ at the upper end of the windpipe shows small hemorrhagic spots in its lining membrane. The lungs generally show small areas of pneumonia and small "blotchy" hemorrhages on their surfaces. The stomach and intestines frequently show hemorrhagic spots in the lining membrane and not uncommonly in the outer membrane.

It is to be noted that all of the tissue changes described may not occur in a single animal dead from hog cholera. **The experience and judgment of persons trained in animal diseases are frequently required to properly interpret and evaluate them before reaching a final diagnosis.**

## CONTROL

Control, as the term is used here, pertains to methods and procedures to be taken which will limit and confine hog cholera to as few animals in the herd as possible and to as few herds in a community as possible.

An important factor in the control of cholera is its early recognition. It is the experience of many veterinarians that where the disease is recognized early and proper treatments applied, a very large per cent of the exposed swine are saved from sickness and death.

All sick pigs should be removed from the herd at once. They should be isolated in a separate pen or enclosure where no physical contact can occur between the sick and well animals. A cholera-sick pig is an extremely dangerous source of infection and is a spreader of the disease. In this connection attention is called to the fact that swine recently treated by the serum-virus ("double treatment") method for the prevention of hog cholera must be considered a potential source of infection and should never be placed in a herd with unvaccinated animals until at least 21 days have elapsed from the time of the treatment. It is also important to treat the entire herd at one time and not allow three or four days to pass between treatments.

The carcasses of swine dead from cholera should be burned or buried. Burial should be at least 4 feet beneath the surface of the ground and quicklime scattered over the carcass before closing the grave. The transportation of swine carcasses should only be done in containers or conveyances that are water-tight.

The length of time that should elapse before it is again safe to place healthy nonimmune swine in houses, pens, and pastures previously occupied by cholera-infected swine is of great importance. It is difficult to state a definite length of time after which cholera-infected premises are safe for nonvaccinated swine. This depends somewhat upon the local conditions. Where a thorough job of cleaning and disinfecting can be done, the susceptible swine can occupy previously infected premises three to four weeks after the disinfecting. A much longer interval should elapse (several months) in the case where complete and thorough cleaning and disinfecting cannot be done. These suggestions apply particularly to restocking with susceptible or nonvaccinated swine because vaccinated ones can be placed on cholera-infected premises at any time.

The prevention of hog cholera is a big factor in its control.

## PREVENTION

Hog cholera can be prevented in two general ways: by keeping the cause of the disease away from susceptible swine and by making the swine immune to the disease. For the first of these it is necessary that all the ways and means by which the causative factor can reach a susceptible pig must be guarded against. Many of the ways in which the infection gains entrance into a herd can be blocked. On the other hand, some of the ways it can come in cannot be satisfactorily controlled under ordinary farm conditions. Not infrequently cholera breaks out on a farm where every practical means of keeping the infection away was undertaken. Swine intended to be maintained as nonimmune and therefore susceptible to cholera should never be placed with swine whose previous history is unknown. Newly purchased swine, regardless of their source, should be isolated in a separate enclosure where they have no physical contact with those already on the

premises. The period of isolation should be at least two weeks or, better still, three to four weeks.

The second general way of preventing loss from hog cholera is by immunization or vaccination. This method is not infallible, however, and has been quite disappointing in some instances. The reasons for failure appear obvious in some cases but perplexing and unknown in others. The benefits from immunization outweigh the disadvantages to such an overwhelming extent that one need not hesitate to recommend the treatment.

The treatment generally used involves the use of anti-hog cholera serum and hog cholera virus. It is referred to as the serum-virus treatment, simultaneous treatment, double treatment, or double vaccination. It is designed to prevent hog cholera rather than *cure* it. The proper time to use the treatment is before the disease appears in the herd. Swine that are to receive the treatment should be vigorous, healthy, and free from any disease. It can be applied to swine of all ages, but it is not advisable to administer it to pigs less than four weeks old. Pregnant sows can be treated without causing them to abort, but whenever possible it is best to avoid treatment at this time. The treatment does not cause sterility in males or females or influence size of litter.

While it is most desirable to apply the serum-virus treatment to healthy swine, nevertheless it sometimes becomes necessary to vaccinate when they are sick with cholera. The certainty of the results in such cases cannot always be predicted, yet it is the proper and only thing to do. Pigs in the advanced stages of the disease are less likely to be benefited than those in the early stages. A question often asked in connection with the treatment of cholera-sick pigs is whether to use the serum-virus treatment or use only the serum. An answer that would be applicable in all cases cannot be made. As a general rule, however, it can be stated that where cholera already exists, there is no reason why the serum-virus treatment should not be used. The fact that virus is injected

into a pig that already has virus in its body will not make it the least bit sicker.

Treatment with serum alone is commendable and has a place under some circumstances. For example, it may be desirable to protect a group of feeder pigs that would be ready for market in a few weeks. Nonimmune pigs that are to be exhibited at a show or fair should be given a dose of anti-hog cholera serum just prior to the time of exhibit. Unvaccinated feeder or breeding swine in transit should be protected against the disease by the serum treatment alone, especially if the destination is a noninfected territory or if they are not to be vaccinated soon after arrival in infected territory. Baby pigs from nonimmune sows that are born in a herd where cholera exists should receive the serum treatment within a day or two after their birth. Treatment with serum alone is recommended where cholera threatens to affect a herd already sick from some other disease.

## TREATMENT

When arrangements have been made to have the pigs vaccinated, the farmer may do several things to make the treatment more effective.

It is good practice to restrict the food intake of the pigs to be treated both before and after treatment. The water supply should be ample at all times.

Pigs that are to receive the treatment should be placed in a pen or other enclosure where they will not be crowded. It should be sufficiently well constructed so that none can escape. The floor should be free from dust and should not be too wet or muddy.

The veterinarian, of course, will make sure that the syringes used for injecting the anti-hog cholera serum and virus are clean and sterile. Sterilization by boiling in clean water for 20 minutes or more is usually ample. Syringes should be properly adjusted so that no leakage will occur.

The place or site on the body where the injection is to be made is a matter of choice by the operator. The more common sites are the axillary space (space between the front leg and chest wall), muscles on the inner side of the hind leg, tissues beneath the skin in the region just behind and a little below the ear, the loose tissues comprising the fold of the flank, and into the abdominal or belly cavity. It is important that the area be clean. Soap and water are preferred for cleansing the area, and then it should be dried, using a clean ball of cotton, piece of cloth, or sponge. Next apply an antiseptic. Tincture of iodine is an excellent one because in addition to its antiseptic property it stains the skin, thus serving as an identification mark should the treated and untreated pigs become temporarily mixed. The virus should never be introduced in the same place with the serum but always at a point that is at least 4 or 5 inches away.

## Dose Table

### SERUM

| | |
|---|---|
| Pigs weighing up to 60 lbs. | 30 c.c. (cubic centimeters) |
| Pigs weighing from 60 to 200 lbs. | ½ its weight in c.c. |
| Pigs weighing over 200 lbs. | 100 c.c. |

### VIRUS

| | |
|---|---|
| Pigs weighing up to 60 lbs. | 2 c.c. |
| Pigs weighing from 60 to 200 lbs. | 3 c.c. |
| Pigs weighing over 200 lbs. | 4 c.c. |

**The foregoing suggestions on treatment are intended for the general information of farmers and particularly to enable farmers to cooperate more effectively with their local veterinarians whose advice and services should be sought in handling cholera and other swine ailments.**

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